



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,157	11/25/2003	Shuzo Iwashita	81863.0024	7015
26021	7590	03/08/2006	EXAMINER	
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611			LOPEZ, CARLOS N	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/722,157

Applicant(s)

IWASHITA ET AL.

Examiner

Carlos Lopez

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 14-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/25/03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 1-5, and 14-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2/15/06.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The claim terminology, "crystals of at least one kind selected from the group consisting of alumina, beryllia, zirconia..." is not provided with antecedent basis by the specification. The specification does provide antecedent basis for the claimed compounds but does not provide antecedent basis for "crystal" of the claimed compound.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 11, the phrase "the crystal" lacks antecedent basis. In claim 12, the phrase "the green compact comprising a stock material powder" lacks antecedent basis.

Art Unit: 1731

In claim 13, the claim recites a sealed space, a volume of a green compact and a heavy object but does not provide a link between the active positive steps and the catalog of parts claimed. Alternatively, the claim in reciting "a green compact", "a sealed space" and "a heavy object" is introducing new elements that are not linked to the claimed active steps recited in parent claim 1. The claim as drafted encompasses any arbitrary heavy object, green compact and sealed space having arbitrary values to meet the claimed invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura (US 5,504,388). Kimura discloses a method of making piezoelectric ceramics. The method comprises piezoelectric material layer 14 interposed between support members 12 and 16 (Col. 6, lines 50ff and see example 2 showing the firing of the piezoelectric material layer 14 while in contact with the support member). The claimed flatness is disclosed in Col. 3, lines 62ff and the claimed porosity is disclosed in Col. 5, lines 55ff.

As for claims 9-10, Col. 7, lines 43ff discloses a piezoelectric ceramic comprised of crystal phase zirconia, niobium, and lead based structure.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura (US 5,504,388). Kimura is silent disclosing the use of CaO, MgO, or Y<sub>2</sub>O<sub>3</sub>. However, at column 7, lines 45ff Kimura teaches that CaO, MgO, or Y<sub>2</sub>O<sub>3</sub> may be added to a ceramic substrate in order to reduce thermal stress during heat treatment of the piezoelectric ceramic composite. Hence the disclosure by Kimura teaches that CaO, MgO, or Y<sub>2</sub>O<sub>3</sub> reduces thermal stress. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used CaO, MgO, or Y<sub>2</sub>O<sub>3</sub> in the piezoelectric ceramic in order to reduce thermal stress, as taught by Kimura. The claimed limitation of adding CaO, MgO, or Y<sub>2</sub>O<sub>3</sub> to piezoelectric ceramic is a deduction clearly envisaged by Kimura, that a person of ordinary skill would arrive in order to provide a piezoelectric ceramic with reduced thermal stress when firing of the green composite, without any unexpected results and reasonable expectation of success.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference B in PTO 892 has been cited to show the state of the art.

Art Unit: 1731

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL

